

Appl. No. 09/586,270
Atty. Docket No. 7533
Amdt. dated September 10, 2003
Reply to Office Action of May 13, 2003
Customer No. 27752

AMENDMENTS TO THE CLAIMS

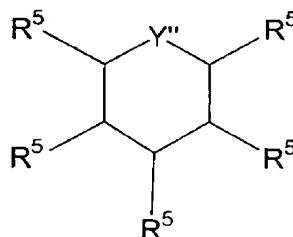
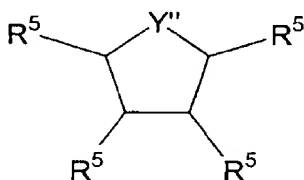
This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1-11. (Cancelled)
12. (Previously presented) A composition for softening a cellulosic structure, said composition comprising:
- (a) from at least about 25% to about 50% of a softening active ingredient;
 - (b) a vehicle wherein said softening active ingredient is dispersed;
 - (c) an electrolyte dissolved in said vehicle; and
 - (d) a bilayer disrupter, wherein said electrolyte and said bilayer disrupter cooperate to cause the viscosity of said composition to be less than the viscosity of a bicomponent dispersion of said softening active ingredient in said vehicle.
13. (Cancelled)
14. (Amended) The composition of Claim 13 wherein said softening active ingredient comprises at least about 35% of said composition.
15. (Original) The composition of Claim 12 wherein said softening active ingredient comprises a quaternary ammonium compound.
16. (Original) The composition of Claim 15 wherein said quaternary ammonium compound has the formula:
- $$(R_1)_{4-m} - N^+ - [(CH_2)_n - Y - R_3]_m X^-$$
- wherein Y is -O-(O)C-, or -C(O)-O-, or -NH-C(O)-, or -C(O)-NH-;
- m is 1 to 3;
- n is 0 to 4;
- each R₁ is a C₁-C₆ alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxyated group, benzyl group, or mixtures thereof;
- each R₃ is a C₁₃-C₂₁ alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxyated group, benzyl group, or mixtures thereof; and
- X⁻ is any softener-compatible anion.
17. (Original) The composition of Claim 16 wherein m is 2, n is 2, R₁ is methyl, R₃ is C₁₅-C₁₇ alkyl or alkenyl, and Y is -O-(O)C-, or -C(O)-O-.
18. (Original) The composition of Claim 17 wherein X⁻ is chloride or methyl sulfate.

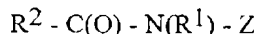
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19. (Original) The composition of Claim 16 wherein said composition further comprises a plasticizer.
20. (Original) The composition of Claim 19 wherein said plasticizer is selected from the group consisting of polyethylene glycol, polypropylene glycol and mixtures thereof.
21. (Original) The composition of Claim 16 wherein said vehicle is water and said electrolyte is a salt selected from the group consisting of the chloride salts of sodium, calcium, and magnesium.
22. (Original) The composition of Claim 21 wherein said salt is present at a level between about 0.1% and about 20% by weight of said composition.
23. (Original) The composition of Claim 12 wherein said bilayer disrupter is used at a level of between about 2% and about 15% of the level of said softening active ingredient.
24. (Original) The composition of Claim 12 wherein said bilayer disrupter is selected from the group consisting of:
 1. nonionic surfactants derived from saturated and/or unsaturated primary, secondary, and/or branched, amine, amide, amine-oxide fatty alcohol, fatty acid, alkyl phenol, and/or alkyl aryl carboxylic acid compounds having from about 6 to about 22 carbon atoms in a hydrophobic chain, wherein at least one active hydrogen of said compounds is ethoxylated with ≤ 50 ethylene oxide moieties to provide an HLB of from about 6 to about 20;
 2. nonionic surfactants with bulky head groups selected from:
 - a. surfactants having the formulas:



wherein Y'' = N or O; and each R⁵ is selected independently from the following:
 -H, -OH, -(CH₂)_xCH₃, -O(OR²)_z-H, -OR¹, -OC(O)R¹, and -CH(CH₂-(OR²)_z-H)-CH₂-(OR²)_z-C(O)R¹, x and R¹ are as defined above and 5 ≤ z, z', and z'' ≤ 20;
 and

- b. polyhydroxy fatty acid amide surfactants of the formula:

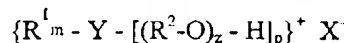


wherein: each R¹ is H, C₁-C₄ hydrocarbyl, C₁-C₄ alkoxyalkyl, or hydroxyalkyl;
 R² is a C₅-C₂₁ hydrocarbyl moiety; and each Z is a polyhydroxyhydrocarbyl

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moiety having a linear hydrocarbyl chain with at least 3 hydroxyls directly connected to the chain, or an ethoxylated derivative thereof; and

3. cationic surfactants having the formula:

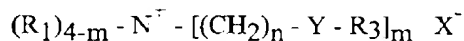


wherein R^1 is selected from the group consisting of saturated or unsaturated, primary, secondary or branched chain alkyl or alkyl-aryl hydrocarbons; said hydrocarbon chain having from about 6 to about 22 carbon atoms; each R^2 is selected from the following groups or combinations of the following groups: $-(CH_2)_n-$ and/or $-[CH(CH_3)CH_2]-$; Y is selected from the following groups: $=N^+-$ $(A)_q$; $-(CH_2)_n-N^+-(A)_q$; $-B-(CH_2)_n-N^+-(A)_2$; $-(phenyl)-N^+-(A)_q$; $-(B-phenyl)-N^+-(A)_q$; with n being from about 1 to about 4, wherein each A is independently selected from the following groups: H ; C_{1-5} alkyl; R^1 ; $-(R^2O)_z-H$; $-(CH_2)_xCH_3$; phenyl, and substituted aryl; where $0 \leq x \leq$ about 3; and each B is selected from the following groups: $-O-$; $-NA-$; $-NA_2$; $-C(O)O-$; and $-C(O)N(A)-$; wherein R^2 is defined as hereinbefore; $q = 1$ or 2 ; total z per molecule is from about 3 to about 50; and X^- is an anion which is compatible with fabric softener actives and adjunct ingredients.

25. (Previously Presented) The composition of Claim 24 wherein said bilayer disrupter is a nonionic surfactant having a hydrophobic moiety that is selected from the group consisting of: fatty alcohols having between about 8 and about 18 carbon atoms and alkyl phenols having between about 8 and about 18 carbon atoms wherein said hydrophobic moiety is ethoxylated with between about 3 and about 15 ethylene oxide moieties.
26. (Withdrawn) A method of producing a soft tissue paper product, the method comprising the steps of:
- providing a chemical softening composition, said chemical softening composition comprising:
 - a vehicle;
 - a softening active ingredient, wherein said softening active ingredient comprises a quaternary ammonium compound;
 - an electrolyte; and
 - a bilayer disrupter;
 - diluting said chemical softening composition to a use concentration;
 - providing a slurry of papermaking fibers;
 - treating said slurry of papermaking fibers with said diluted chemical softening composition;

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- e) depositing said treated slurry of said papermaking fibers on a foraminous forming wire; and
 - f) dewatering said treated slurry by drainage through said foraminous forming wire to form an embryonic web.
27. (Withdrawn) The method of Claim 26 wherein said method comprises the additional steps of after step f:
- a) transferring said embryonic web to a carrier fabric; and
 - b) drying said dewatered slurry while said slurry is supported by said carrier fabric to form a predried paper web.
28. (Withdrawn) The method of Claim ~~28~~ 27 wherein said method comprises the additional steps of after step b:
- a) transferring said predried paper web to a drying cylinder; and
 - b) drying said predried web to form a paper sheet.
29. (Withdrawn) The method of Claim 29 28 wherein:
- a) said slurry of papermaking fibers comprises separate slurries, a first slurry of relatively short papermaking fibers and a second slurry of relatively long papermaking fibers;
 - b) only said second slurry is treated with said diluted chemical softening composition; and
 - c) said first slurry is disposed on said Foraminous fabric between said wire and said second slurry.
30. (Withdrawn) The method of Claim ~~27~~ 26 wherein said softening active ingredient comprises at least about 25% of said composition.
31. (Withdrawn) The method of Claim ~~30~~ 29 wherein said softening active ingredient comprises at least about 35% of said composition.
32. (Withdrawn) The method of Claim ~~27~~ 26 wherein said softening active ingredient comprises a quaternary ammonium compound.
33. (Withdrawn) The method of Claim ~~33~~ 32 wherein said quaternary ammonium compound has the formula:



wherein Y is -O-(O)C-, or -C(O)-O-, or -NH-C(O)-, or -C(O)-NH-;

m is 1 to 3;

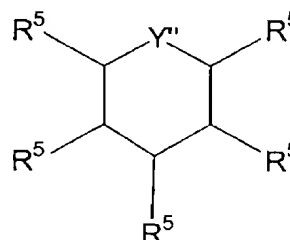
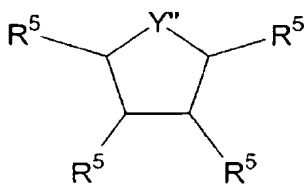
n is 0 to 4;

each R₁ is a C₁-C₆ alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof;

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each R_3 is a C_{13} - C_{21} alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxyated group, benzyl group, or mixtures thereof; and X^- is any softener-compatible anion.

34. (Withdrawn) The method of Claim ~~34~~ 33 wherein m is 2, n is 2, R_1 is methyl, R_3 is C_{15} - C_{17} alkyl or alkenyl, and Y is $-O-(O)C-$, or $-C(O)-O-$.
35. (Withdrawn) The method of Claim ~~35~~ 34 wherein X^- is chloride or methyl sulfate.
36. (Withdrawn) The method of Claim ~~33~~ 32 wherein said composition further comprises a plasticizer.
37. (Withdrawn) The method of Claim ~~37~~ 36 wherein said plasticizer is selected from the group consisting of polyethylene glycol, polypropylene glycol and mixtures thereof.
38. (Withdrawn) The method of Claim ~~28~~ 27 wherein said vehicle is water and said electrolyte is a salt selected from the group consisting of the chloride salts of sodium, calcium, and magnesium.
39. (Withdrawn) The method of Claim ~~39~~ 38 wherein said salt is present at a level between about 0.1% and about 20% by weight of said composition.
40. (Withdrawn) The method of Claim ~~27~~ 26 wherein said bilayer disrupter is used at a level of between about 2% and about 15% of the level of said softening active ingredient.
41. (Withdrawn) The method of Claim ~~27~~ 26 wherein said bilayer disrupter is selected from the group consisting of:
 1. nonionic surfactants derived from saturated and/or unsaturated primary, secondary, and/or branched, amine, amide, amine-oxide fatty alcohol, fatty acid, alkyl phenol, and/or alkyl aryl carboxylic acid compounds having from about 6 to about 22 carbon atoms in a hydrophobic chain, wherein at least one active hydrogen of said compounds is ethoxylated with ≤ 50 ethylene oxide moieties to provide an HLB of from about 6 to about 20;
 2. nonionic surfactants with bulky head groups selected from:
 - a. surfactants having the formulas:

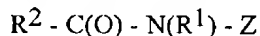


wherein Y'' = N or O; and each R^5 is selected independently from the following:

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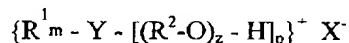
-H, -OH, $-(CH_2)_xCH_3$, $-O(OR^2)_z-H$, $-OR^1$, $-OC(O)R^1$, and $-CH(CH_2-(OR^2)_z-H)-CH_2-(OR^2)_z-C(O)R^1$, x and R^1 are as defined above and $5 \leq z$, z' , and $z'' \leq 20$; and

b. polyhydroxy fatty acid amide surfactants of the formula:



wherein: each R^1 is H, C_1 - C_4 hydrocarbyl, C_1 - C_4 alkoxyalkyl, or hydroxyalkyl; R^2 is a C_5 - C_{21} hydrocarbyl moiety; and each Z is a polyhydroxyhydrocarbyl moiety having a linear hydrocarbyl chain with at least 3 hydroxyls directly connected to the chain, or an ethoxylated derivative thereof; and

3. cationic surfactants having the formula:



wherein R^1 is selected from the group consisting of saturated or unsaturated, primary, secondary or branched chain alkyl or alkyl-aryl hydrocarbons; said hydrocarbon chain having from about 6 to about 22 carbon atoms; each R^2 is selected from the following groups or combinations of the following groups: $-(CH_2)_n-$ and/or $-[CH(CH_3)CH_2]-$; Y is selected from the following groups: $=N^+$, $(A)_q$, $-(CH_2)_n-N^+(A)_q$, $-B-(CH_2)_n-N^+(A)_2$, $-(phenyl)-N^+(A)_q$, $-(B-phenyl)-N^+(A)_q$; with n being from about 1 to about 4, wherein each A is independently selected from the following groups: H; C_{1-3} alkyl; R^1 ; $-(R^2O)_z-H$; $-(CH_2)_xCH_3$; phenyl, and substituted aryl; where $0 \leq x \leq$ about 3; and each B is selected from the following groups: $-O-$; $-NA-$; $-NA_2$; $-C(O)O-$; and $-C(O)N(A)-$; wherein R^2 is defined as hereinbefore; $q = 1$ or 2 ; total z per molecule is from about 3 to about 50; and X^- is an anion which is compatible with fabric softener actives and adjunct ingredients.

42. (Withdrawn) The method of Claim 42 ~~41~~ wherein said bilayer disrupter is a nonionic surfactant having a hydrophobic moiety that is selected from the group consisting of: fatty alcohols having between about 8 and about 18 carbon atoms and alkyl phenols having between about 8 and about 18 carbon atoms wherein said hydrophobic moiety is ethoxylated with between about 3 and about 15 ethylene oxide moieties.
43. (Withdrawn) The method of Claim 27 ~~26~~ wherein said use concentration is between about 0.5% and about 10%.
44. (Withdrawn) The method of Claim 44 ~~43~~ wherein said use concentration is between about 0.5% and about 5%.
45. (Withdrawn) The method of Claim 45 ~~44~~ wherein said use concentration is about 1%